

## **ABSTRACT**

An intravascular probe includes a sheath with a distal portion and a proximal portion. The intravascular probe includes a first optical waveguide extending along the sheath, the first optical waveguide being configured to carry optical radiation between the distal and proximal portions, and a first beam redirector disposed at the distal portion in optical communication with the first optical waveguide. The intravascular probe also includes an optical detector configured to receive optical radiation from the first optical waveguide, and an ultrasound transducer disposed at the distal portion. The ultrasound transducer is configured to couple ultrasound energy between the intravascular probe and a transmission medium. A wire extends along the sheath in electrical communication with the ultrasound transducer.

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